SD-69527-01

DWG ISSUE	CD ISSUE	DATE ISSUED	DRAWN	APP'D
1	1	3-3-65	G.J.M. SJF	JRP FNR PD

SHEET INDEX

CONTENTS	SHEET NO.	ISSUE NO.																																																	SHEET NO.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
SHEET INDEX SUPPORTING INFORMATION	A1	1																																																	A1
SHEET INDEX	A2	1																																																	A2
APPARATUS INDEX LEAD INDEX OPTION INDEX	A3	1																																																	A3
FS1 4 WIRE TERMINATION & MAIN STATION TRANSMISSION PATHS	B1	1																																																	B1
FS2 TALK-RECEIVE-SEND CONTROL CIRCUIT FS3 MAIN STATION TALKING BATTERY CIRCUIT	B2	1																																																	B2
FS4 HYBRID COIL ARRANGEMENT FOR EXTENSION RECEIVE ONLY FACSIMILE MACHINES	B3	1																																																	B3
FS5 D.C. SWITCHING & CONTROL FS6 20 CYCLE SIGNALING CIRCUIT FS7 FLASHING CIRCUIT	B4	1																																																	B4
FS8 EXTENSION STATION TELEPHONE CIRCUIT FS9 EXTENSION STATION CONTROL CIRCUIT FS10 EXTENSION STATION SIGNALING CIRCUIT	B5	1																																																	B5
FS11 D.C. LOCKING CONTROL CIRCUIT (SEE NOTE 411) FS12 REMOTE CONTROL CIRCUIT FS13 VOLUME METER CIRCUIT FS14 EXTENSION STATION LOUDSPEAKER CONNECTION CIRCUIT	B6	1																																																	B6
APP FIG. 1 APP FIG. 2 APP FIG. 3 APP FIG. 4 APP FIG. 5 APP FIG. 6 APP FIG. 7	C1	1																																																	C1
APP FIG. 8 APP FIG. 9 APP FIG. 10 APP FIG. 11 APP FIG. 12 APP FIG. 13 APP FIG. 14	C2	1																																																	C2
CIRCUIT NOTES 101-END WORKING LIMITS INFORMATION NOTES 301-END	D1	1																																																	D1
CROSS CONNECTION NOTES 401 - END	D2	1																																																	D2
CIRCUIT REQUIREMENTS TABLE	F1	1																																																	F1
CAD 1	G1	1																																																	G1

SUPPORTING INFORMATION

CATEGORY	NO.
EQUIPMENT DRAWINGS	J53040B-( ) J53040C-( ) J53040D-( ) J53040E-( ) J53040F-( ) J53040G-( ) J53040H-( )
EQUIPMENT DESIGN REQT	J53040 BSP AA321.030

SHEET INDEX NOTES

1. WHEN CHANGES ARE MADE IN THIS DRAWING, ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.
2. THIS SHEET INDEX WILL BE REISSUED AND BROUGHT UP TO DATE EACH TIME ANY SHEET OF THE DRAWING IS REISSUED, OR A NEW SHEET IS ADDED.
3. THE ISSUE NUMBER ASSIGNED TO A CHANGED OR NEW SHEET WILL BE THE SAME ISSUE NUMBER AS THAT OF THE SHEET INDEX.
4. SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NUMBER.
5. THE LAST ISSUE NUMBER OF THE SHEET INDEX IS RECOGNIZED AS THE LATEST ISSUE NUMBER OF THE DRAWING AS A WHOLE.

SD-69527-01

STATION SYSTEMS

KEY EQUIPMENT NO. 110A, STATIONARY
4 WIRE TOLL LINE TERMINATION CIRCUIT
ARRANGED FOR TELEPHOTOGRAPH OR
TELEPHONE SERVICE

AT&TCO
STANDARD

SD-69527-01-A1
20 SHEETS

BELL TELEPHONE LABORATORIES
INCORPORATED

DWG SIZE
6S

PRINTED IN U.S.A.

DRAWING ISSUE

1 G.J.H SJF PD

SHEET INDEX

CONTENTS	SHEET NO.	ISSUE NO.																																																	SHEET NO.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
CAD 2 CAD 3 CAD 4	G2	1																																																	G2
CAD 5 PART OF CAD 6	G3	1																																																	G3
PART OF CAD 6 CAD 7 CAD 8	G4	1																																																	G4
CAD 9 CAD 10 CAD 11	G5	1																																																	G5
CPS 1 CPS 2 MANUFACTURING REFERENCES	J1	1																																																	J1

STATION SYSTEMS
KEY EQUIPMENT NO. 110A, STATIONARY
4 WIRE TOLL LINE TERMINATION CIRCUIT

SD-69527-01-A2

BELL TELEPHONE LABORATORIES
INCORPORATED

DWG SIZE 6S

PRINTED IN U.S.A.

DRAWING ISSUE	
1	GWH SJF PD

APPARATUS INDEX

DESIG	LOCATION		
	FS	APP FIG.	EQPT
RELAYS			
A	2D2	1	
A1	2G2	1	
B	5C2	12	
BA	2D7	1	
DCR	6C1	10	
DCS	6B1	10	
FL	4F6	8	
L	4D6	8	
N	2B2	1	
R	4B6	8	
RE	5F7	12	
S	2F2	1	
SW	4C2	6	
SWL	4B2	6	
TE	5D7	11	
W1	6C8	14	
Z	5B2	12	
Z1	6D8	14	

AMPLIFIER			
AMP	6B4	13	

CAPACITORS			
C1	3D1	2	
CA	1C0	5	
CB	1E0	5	
CC	4C5	8	
CE	5C7	11	

CIRCUIT PACKS			
CP1	3A0,3F0	2	
CP2	3D0	2	

COILS			
L	1B1	5	
M	1D1	5	

CONNECTOR			
A	SEE APP FIG.	1	

DIODES			
CR1	4C6	8	
CR2	4C6	8	
CR3	4C6	8	
CR4	4C6	8	

INDUCTORS			
A	2C7	1	
B	5B7	11	

DESIG	LOCATION		
	FS	APP FIG.	EQPT
INTERRUPTER			
INT	4G7	9	

JACKS			
R	1H1	7	
RR	1C1	7	
RT	1B1	7	
T	1G1	7	
TR	1E1	7	
TT	1D1	7	

LAMP			
L1	2B7	1	

METER			
VU	6B6	13	

PADS			
A	1B6	1	
B	1D6	1	
C	1E6	1	
D	1G6	1	
E	3B6	2	
F	3C6	3	

RESISTORS			
A	1F7	1	
B	1G7	1	
C	1D7	1	
D	1C8	1	
E	1A7	1	
F	1B7	1	
G	1B7	1	
J	5B6	12	
K	5C6	12	
L	5C7	12	
M	5B3	12	
N	5B3	12	
P	6D4	11	
R	6E4	11	
R3	3C4	3	
RA	1C0	5	
RB	1D0	5	
RV1	6B5	13	
RV2	6B5	13	
RV3	6B4	13	
S	6D4	11	
W1	6C9	14	
Z	3D1	2	
Z1	6D9	14	

DESIG	LOCATION		
	FS	APP FIG.	EQPT
TRANSFORMERS			
A	1A4	1	
A	1C4	1	
B	1D4	1	
C	1E6	1	
D	1G6	1	
E	3B2	2	
E	3C2	2	
F	3B5	3	
G	3C5	3	
J	1B7	1	

LEAD INDEX

DESIG	LOCATION	
	FS	CAD
1ST FACSIMILE MACHINE		
FR1	3B7	2E0,2E4
FT1	3B7	2E0,2E4
2ND FACSIMILE MACHINE		
FR2	3D7	2B6
FT2	3C7	2B6
3RD FACSIMILE MACHINE		
FR3	3G7	2C6
FT3	3F7	2C6

2 WIRE TRANSCEIVER		
TR	1D9	1G0
TT	1D9	1G0

4 WIRE TELEPHOTOGRAPH RECEIVER		
4WRR	1B9	1G0
4WRT	1B9	1G0

4 WIRE TELEPHOTO TRANSMITTER		
TR	1D9	1G0
TT	1D9	1G0

4 WIRE TRUNK		
RR	1G1,1F0	5B3,5B6
RT	1G1,1F0	5B3,5B6
TR	1G1,1F0	5B3,5B6
TT	1G1,1F0	5B3,5B6

20~ RINGING SUPPLY		
±105	4D4,5G5	1G5
GRD	4D4,5G5	1G5

EXTENSION STATION TEL SET		
BC	5G7	3B6
ERR	5E7	3B6
ERT	5E7	3B6
GRD (D)	5E7	3B6
RE	5F7	3B6
TB	5C7	3B6
TE	5D7	3B6
TG	5C7	3B6
R1	5B7	3B6
R2	5D7	3B6
T1	5A7	3B6
T2	5C7	3B6

DESIG	LOCATION	
	FS	CAD
1ST EXTENSION		
ERR	5E7	3B3
ERT	5E7	3B3
GRD (D)	5E7	3B3
R1	5B7	3B3
R2	5D7	3B3
T1	5A7	3B3
T2	5C7	3B3
TB	5C7	3B3
TE	5D7	3B3
TG	5C7	3B3
2ND EXTENSION		
SAME AS 1ST		
3RD EXTENSION		
SAME AS 1ST		

FACSIMILE MACHINE		
CR	3H7	1E3
CT	3G7	1E3

LOCAL STA TEL SET		
R	1G2	5D3
T	1G2	5D3

MAIN STA LOUDSPEAKER SET		
MLSR	1A9	1A6
MLST	1A9	1A6
1ST EXT LOUDSPEAKER SET		
1LSR	6E6	3D0,4D0
1LST	6E6	3D0,4D0
2ND EXT LOUDSPEAKER SET		
2LSR	6E6	3D0,4D0
2LST	6E6	3D0,4D0
3RD EXT LOUDSPEAKER SET		
3LSR	6E6	3D0,4D0
3LST	6E6	3D0,4D0

MISCELLANEOUS FUSE PANEL		
GRD (D)		3G3
GRD (E)		3G3
SIG BAT.(D)		4F0,3G3
TALK BAT.(E)		4E0,3G3

POWER SUPPLY		
GRD (C)		4F0
GRD (D)		3G3
GRD (E)		3G3
SIG BAT.(D)		4E0
SIG GRD (D)		4F0
TALK BAT.(E)		4E0
TALK GRD (E)		4E0

REMOTE CONTROL		
RC01	6E8	1D3
RC02	6E8	1F3

TEL TRK		
R	1G1	5D3
T	1G1	5D3

OPTION INDEX

APP OR WRG	LOCATION
2	APP FIG. 2
3	APP FIG. 3
4	APP FIG. 4
5	APP FIG. 5
6	APP FIG. 6
7	APP FIG. 7
8	APP FIG. 8
9	APP FIG. 9
10	APP FIG. 10
11	APP FIG. 11
12	APP FIG. 12
13	APP FIG. 13
14	APP FIG. 14
Z	APP FIG.1,APP FIG.2, 3D1,3E1
Y	APP FIG.1,APP FIG.2, 3D1
X	1B5,1C5
W	1C8
V	1B8,1C8
T	3B4,3B5,3B6
S	1C0,1D0
R	1B0,1B1,1C0,1C1,1D0, 1D1,1E0,1E1
Q	2E3
N	2C2,5B6,5B7,5C6,5C7, 5D6,5D7,5E5,5E6
M	1B1,1B2,1C1,1C2,1D1, 1D2,1E1,1E2,1G1,1G2, 1H1,1H2
K	1B5,1C5
J	2D2

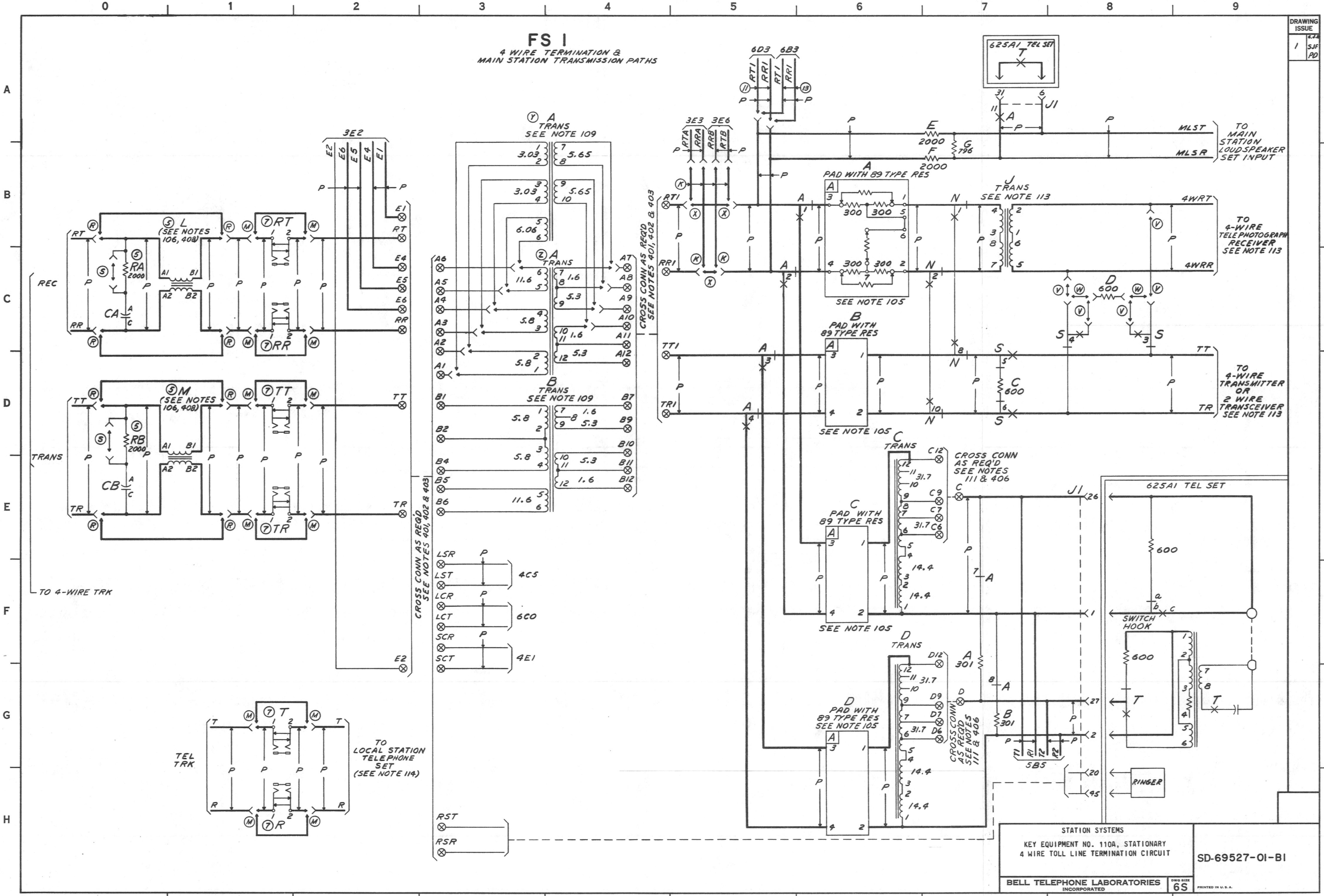
STATION SYSTEMS
KEY EQUIPMENT NO. 110A, STATIONARY
4-WIRE TOLL LINE TERMINATION CIRCUIT

SD-69527-01-A3

BELL TELEPHONE LABORATORIES
INCORPORATED

DWG SIZE
6S

PRINTED IN U. S. A.



FS 1

4 WIRE TERMINATION & MAIN STATION TRANSMISSION PATHS

STATION SYSTEMS

KEY EQUIPMENT NO. 110A, STATIONARY
4 WIRE TOLL LINE TERMINATION CIRCUIT

SD-69527-01-B1

BELL TELEPHONE LABORATORIES
INCORPORATED

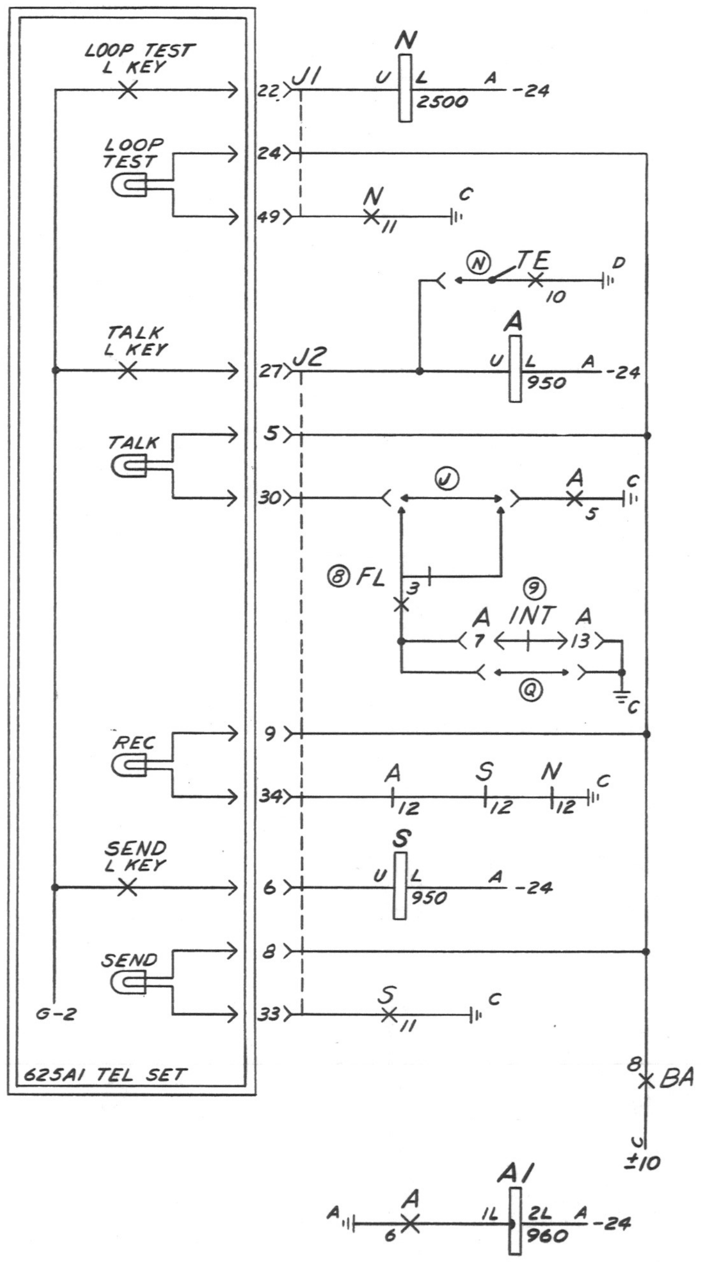
DWG SIZE 6S

PRINTED IN U.S.A.

DRAWING ISSUE
1 SJF PD

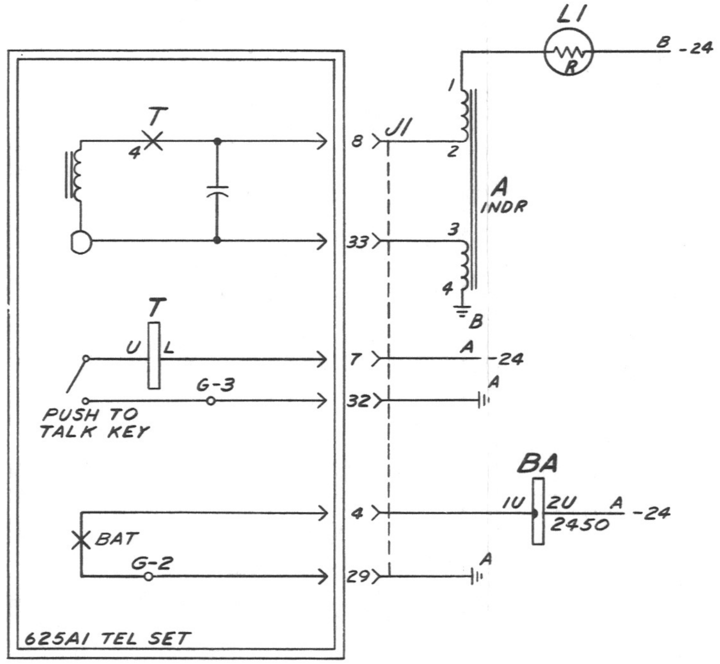
FS 2

TALK-RECEIVE-SEND CONTROL CIRCUIT



FS 3

MAIN STATION TALKING BATTERY CIRCUIT



STATION SYSTEMS
KEY EQUIPMENT NO. 110A, STATIONARY
4 WIRE TOLL LINE TERMINATION CIRCUIT

SD-69527-01-B2

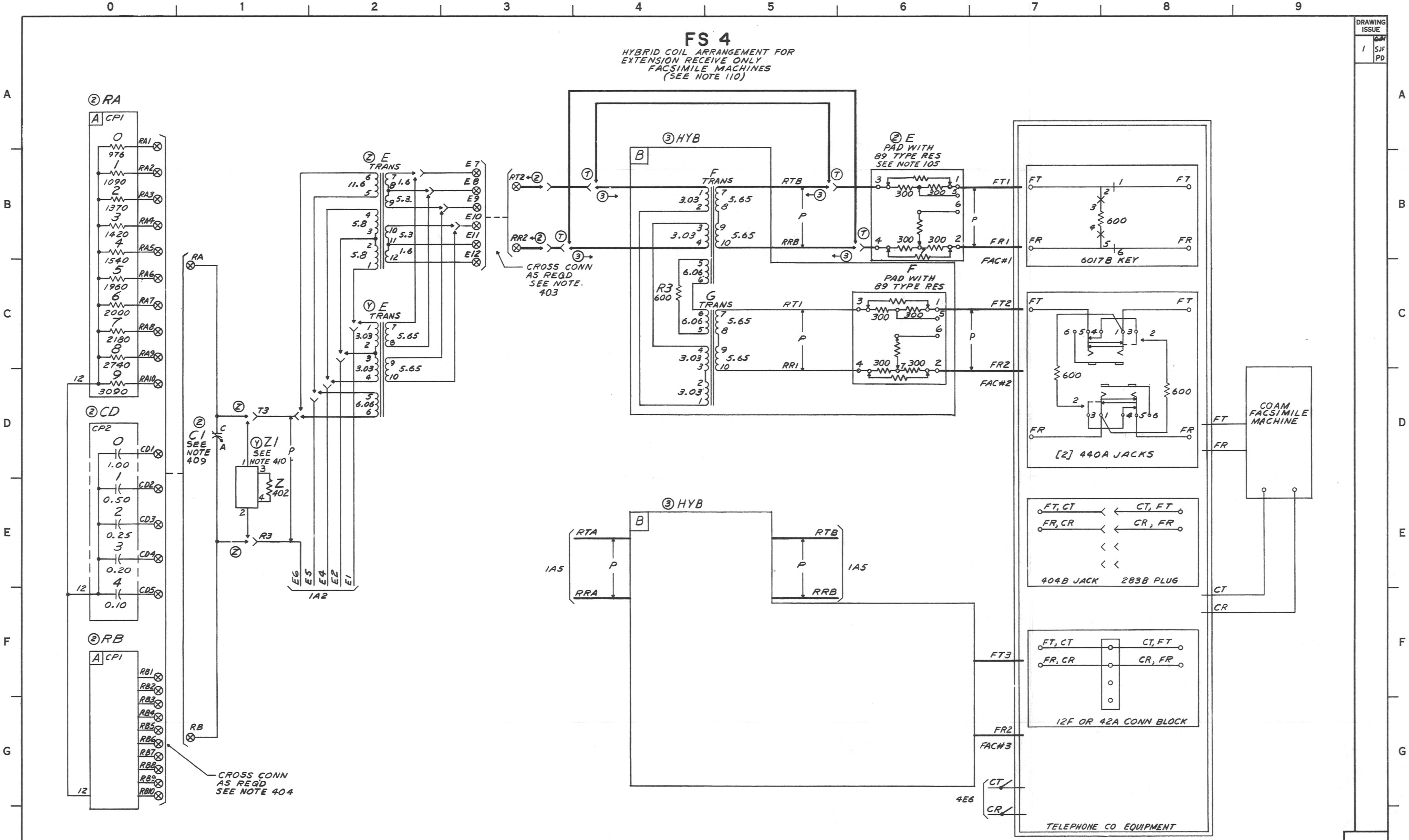
BELL TELEPHONE LABORATORIES
INCORPORATED

DWG SIZE 6S

PRINTED IN U.S.A.

FS 4

HYBRID COIL ARRANGEMENT FOR EXTENSION RECEIVE ONLY FACSIMILE MACHINES (SEE NOTE 110)



STATION SYSTEMS

KEY EQUIPMENT NO. 110A, STATIONARY
4 WIRE TOLL LINE TERMINATION CIRCUIT

SD-69527-01-B3

BELL TELEPHONE LABORATORIES
INCORPORATED

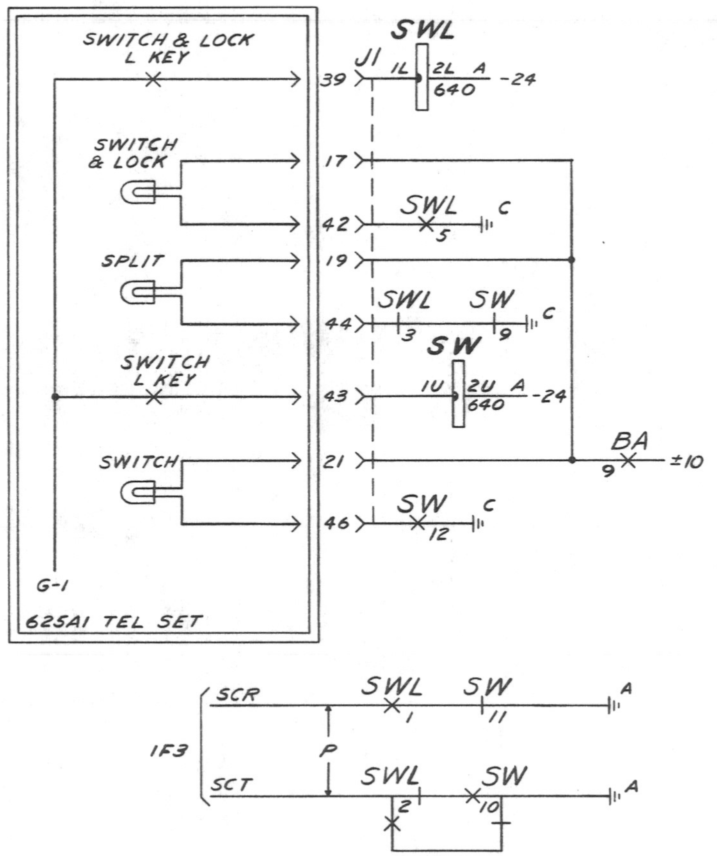
DWG SIZE 6S

PRINTED IN U.S.A.

DRAWING ISSUE
1 SJF PD

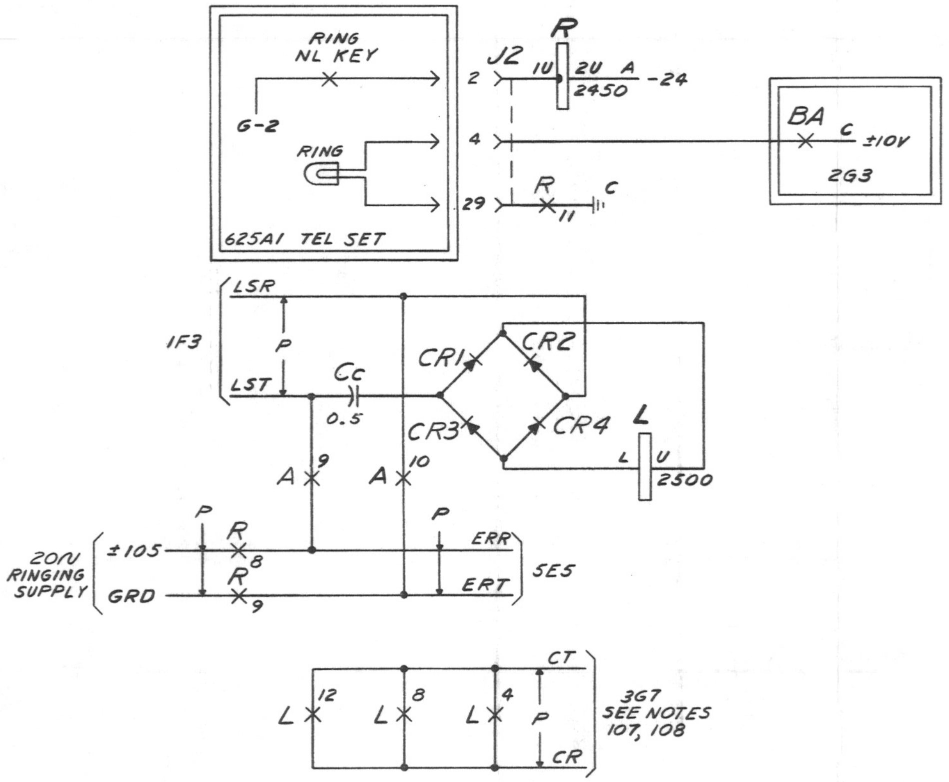
⑥FS 5

DC SWITCHING & CONTROL



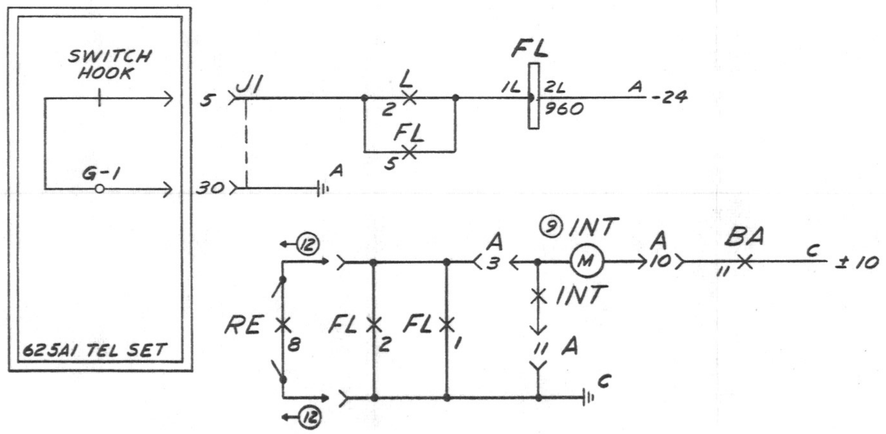
⑧FS 6

20 CYCLE SIGNALING CIRCUIT



FS 7

FLASHING CIRCUIT



STATION SYSTEMS

KEY EQUIPMENT NO. 110A, STATIONARY
4 WIRE TOLL LINE TERMINATION CIRCUIT

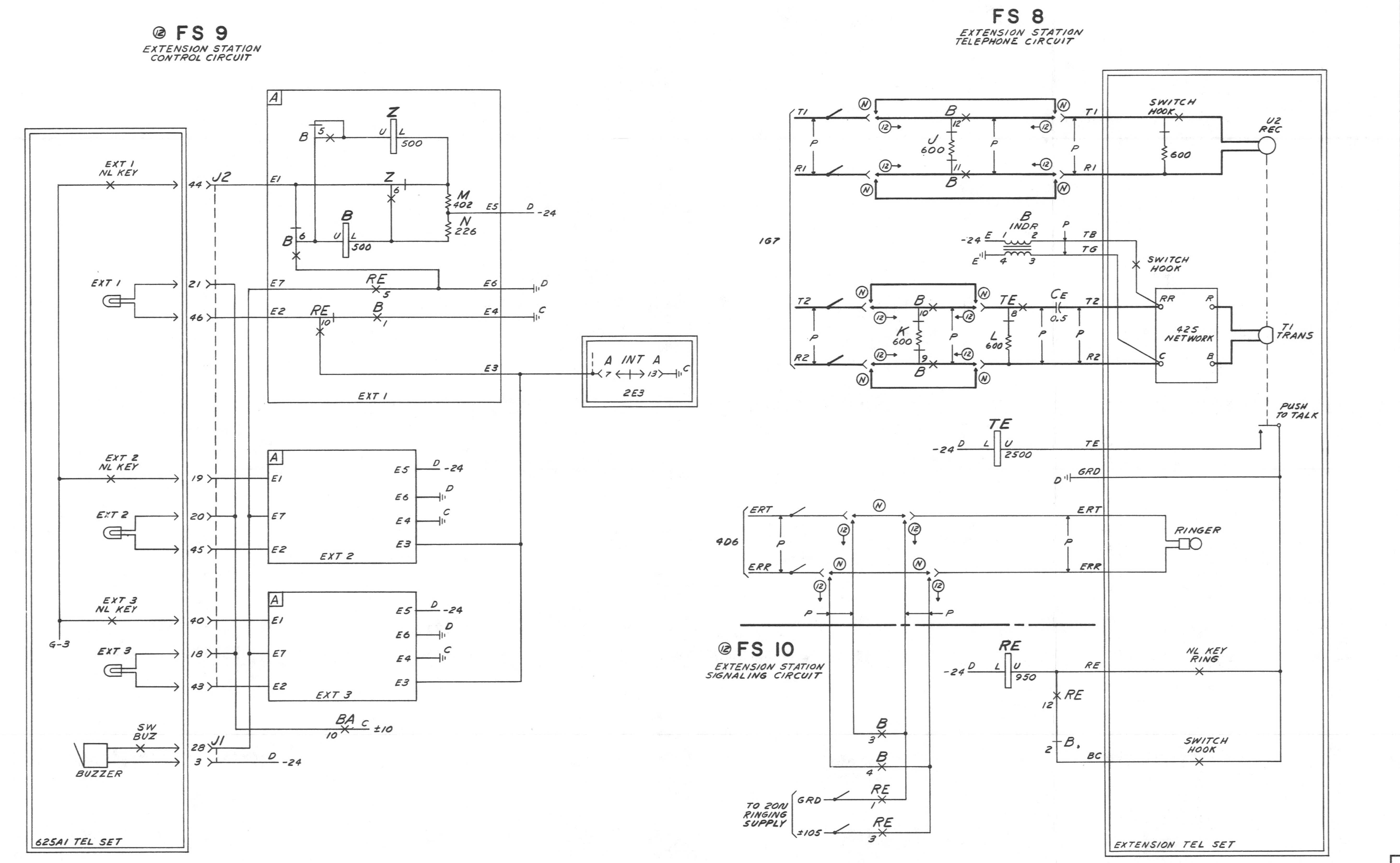
SD-69527-01-B4

BELL TELEPHONE LABORATORIES
INCORPORATED

DWG SIZE 6S

PRINTED IN U.S.A.

DRAWING ISSUE
1 GJH SJF PD



STATION SYSTEMS

KEY EQUIPMENT NO. 110A, STATIONARY
4 WIRE TOLL LINE TERMINATION CIRCUIT

SD-69527-01-B5

BELL TELEPHONE LABORATORIES
INCORPORATED

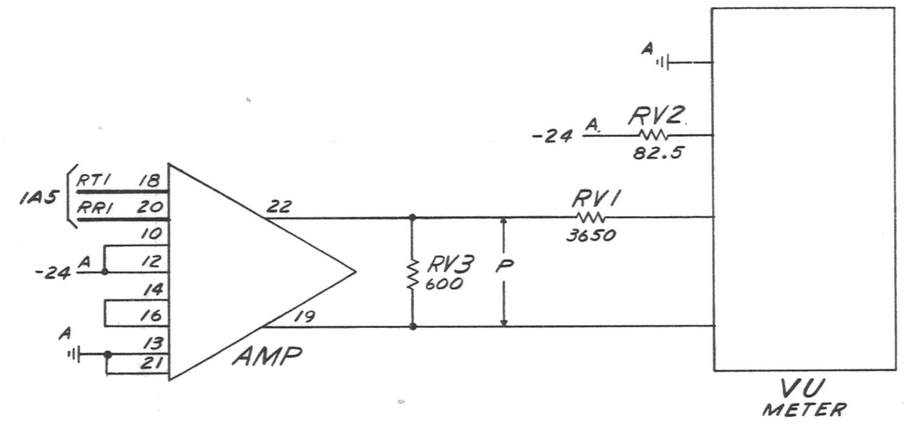
DWG SIZE 6S

PRINTED IN U.S.A.

DRAWING ISSUE 1 64M SJF PD

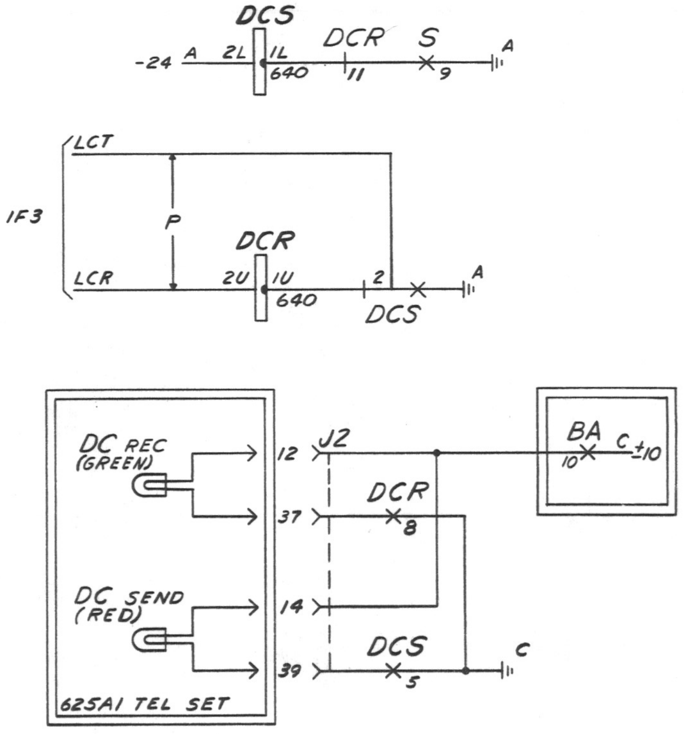
⑬ FS 13

VOLUME METER CIRCUIT



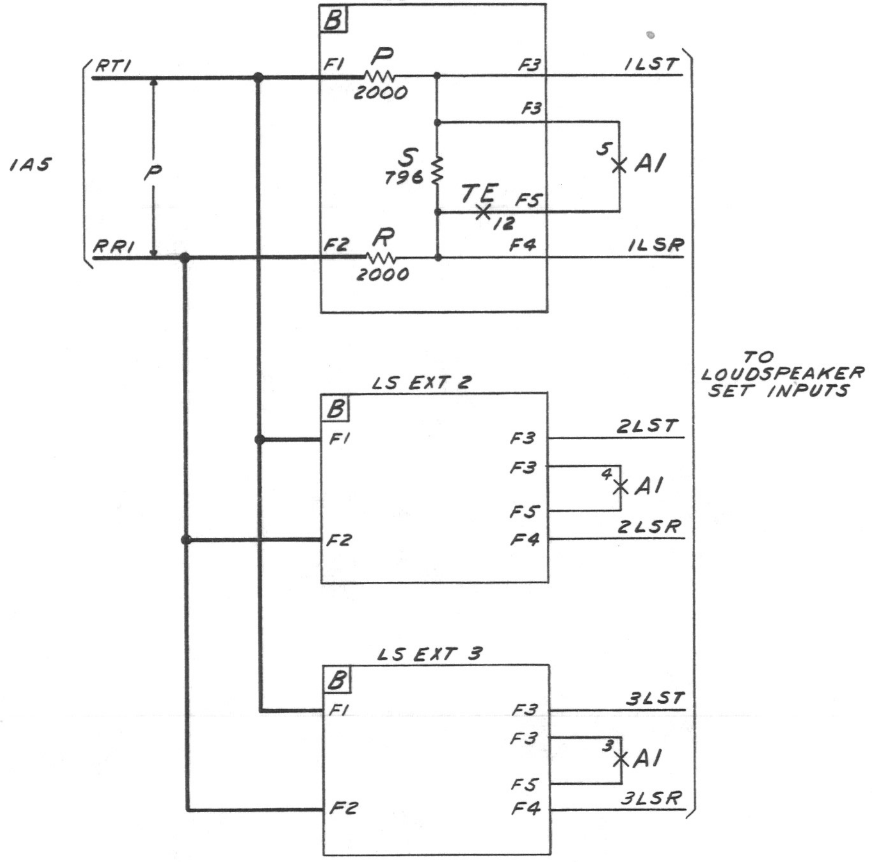
⑩ FS 11

DC LOCKING CONTROL CIRCUIT



⑪ FS 14

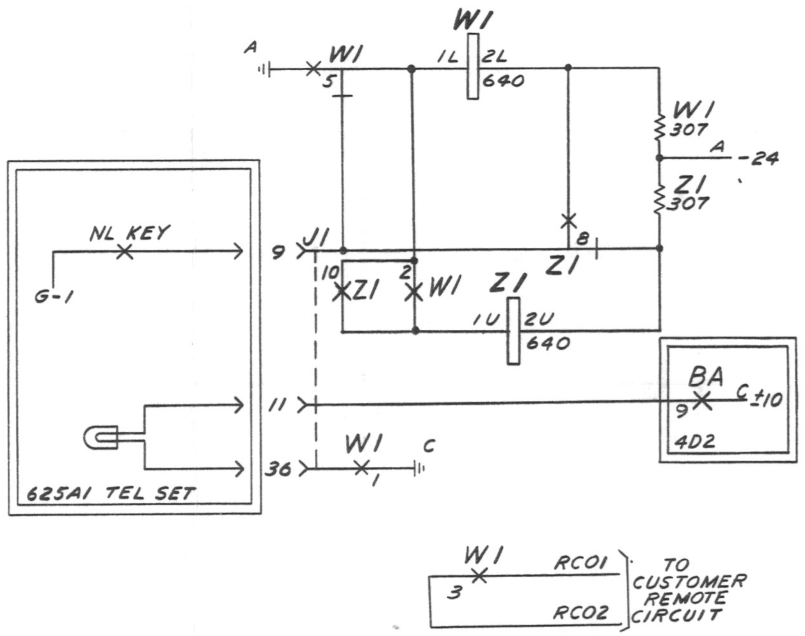
EXTENSION STATION LOUDSPEAKER CONNECTION CIRCUIT (SEE NOTE 112)



LS EXT 1
B
F1 P 2000 F3 1LST
F3
S 796
TE 12 F5
5 A1
F2 R 2000 F4 1LSR
1A5 RT1 P RR1
LS EXT 2
B F1 F3 2LST F3 4 A1 F5 F2 F4 2LSR
LS EXT 3
B F1 F3 3LST F3 3 A1 F5 F2 F4 3LSR
TO LOUDSPEAKER SET INPUTS

⑭ FS 12

REMOTE CONTROL CIRCUIT



STATION SYSTEMS

KEY EQUIPMENT NO. 110A, STATIONARY
4 WIRE TOLL LINE TERMINATION CIRCUIT

SD-69527-01-B6

BELL TELEPHONE LABORATORIES
INCORPORATED

DWG SIZE 6S

PRINTED IN U.S.A.

APP FIG. 1

RELAY

DESIG	A		A1		BA						N						S								DESIG
CODE	AJ39		AK10								AJ75						AJ39								CODE
OPTION																									OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12	EBM	2F2			BM						B	2F3					EBM	2F2							12
11	EBM	1A7			M	4G7					M	2C2					EBM	2F2							11
10	EBM	4D5			M	5G2					EBM	1D7					EBM								10
9	EBM	4D5			M	4D3											EBM	6B1							9
8	EBM	1G7			M	2G3					EBM	1D7					EBM								8
7	EBM	1F7															EBM								7
6	EBM	2G2									EMB						EBM	1D7							6
5	EBM	2D3	M	6D5													EBM	1D7							5
4	EBM	1D5	BM	6F5													EBM	1C8							4
3	EBM	1D5	BM	6G5							B						EBM	1C8							3
2	EBM	1C5	BM								EBM	1C7					EBM								2
1	EBM	1B6	BM								BM	1B7					EBM								1
COIL		2D2		2G2		2D7						2B2						2F2							COIL

APP FIG. 6

RELAY

DESIG													SWL		SW										DESIG
CODE													AK30												CODE
OPTION																									OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12															M	4D2									12
11															EBM	4E2									11
10															EBM	4E2									10
9															EMB	4C2									9
8															EMB										8
7																									7
6																									6
5													EMB	4C2											5
4													EMB												4
3													EBM	4C2											3
2													EBM	4E2											2
1													M	4E2											1
COIL														4B2		4C2									COIL

CONNECTOR

DESIG	CODE
A	907B

TERM.	LOC
1	
2	
3	4G6
4	
5	
6	
7	2E2
8	
9	
10	4G7
11	4G6
12	
13	2E3
14	

INDUCTOR

DESIG	LOC	CODE
A	2C7	274AH

LAMP

DESIG	LOC	CODE
L1	2B7	13N

PADS

DESIG	LOC	CODE
A	1B6	1C
B	1D6	1C
C	1E6	1C
D	1G6	1C

RESISTORS

DESIG	LOC	CODE
A	1F7	145A,301
B	1G7	145A,301
C	1D7	145A,600
D	1C8	145A,600
E	1A7	145A,2000
F	1B7	145A,2000
G	1B7	145A,796

TRANSFORMERS

	DESIG	LOC	CODE
Ⓩ	A	1A4	120P REP COIL
Ⓨ	A	1C4	120N REP COIL
	B	1D4	120P REP COIL
	C	1E6	177D REP COIL
	D	1G6	177D REP COIL
	J	1B7	120H REP COIL

APP FIG. 7

JACKS

DESIG	LOC	CODE
R	1H1	410C
RR	1C1	
RT	1B1	
T	1G1	
TR	1E1	
TT	1D1	410C

APP FIG. 4

CONN CABLE

A50B (SPECIFY 50' OR 100' LENGTH)

DESIG	J1	J2
CODE	KS-16671,L1	
OPTION		
TERM.	LOC	LOC
1	1F8	
	1G8	4B6
	5G1	
	2D6	4B6
5	4F5	2D2
	1A7	2F2
	2C6	
	2B6	2F2
	6D7	2E2
10		
	6E7	
		6D1
		6D1
15		
	4B2	
		5F1
	4C2	5D1
20	1H8	5E1
	4D2	5C1
	2B2	
	2C2	
25	4D2	
	1E8	
	1G8	2D2
	5G1	
	2D6	4B6
30	4G5	2D2
	1A7	
	2D6	
	2C6	2F2
		2F2
35		
	6E7	
		6D1
	4B2	6F1
40		5F1
	4C2	
	4C2	5F1
	4C2	5B1
45	1H8	5E1
	4D2	5C1
	2C2	
50		

APP FIG. 2

CAPACITOR

	DESIG	LOC	CODE
Ⓩ	C1	3D1	187A

CIRCUIT PACKS

	DESIG	LOC	CODE
[2] Ⓩ	CP1	3A0,3F0	ED-94823-( ),G229
Ⓩ	CP2	3D0	ED-94823-( ),G230

NETWORK

	DESIG	LOC	CODE
Ⓨ	Z1	3D1	115D

PAD

DESIG	LOC	CODE
E	3B6	1C

RESISTOR

DESIG	LOC	CODE
Z	3D1	145A,402

TRANSFORMERS

	DESIG	LOC	CODE
Ⓩ	E	3B2	120P REP COIL
Ⓨ	E	3C2	120N REP COIL

APP FIG. 3

PADS

DESIG	LOC	CODE
F	3C6	1C

RESISTORS

DESIG	LOC	CODE
R3	3C4	145A,600

TRANSFORMERS

DESIG	LOC	CODE
F	3B5	120N REP COIL
G	3C5	120N REP COIL

APP FIG. 5

CAPACITORS

DESIG	LOC	CODE
CA	1C0	187B
CB	1E0	187B

COILS

DESIG	LOC	CODE
L	1B1	638 LOADING
M	1D1	638 LOADING

MTD IN
601A1
COIL CASE

RESISTORS

DESIG	LOC	CODE
RA	1C0	145A,2000
RB	1D0	145A,2000

DRAWING ISSUE	
1	GdH SJF PD

STATION SYSTEMS

KEY EQUIPMENT NO. 110A, STATIONARY
4 WIRE TOLL LINE TERMINATION CIRCUIT

SD-69527-01-C1

BELL TELEPHONE LABORATORIES
INCORPORATED

DWG SIZE 6S

PRINTED IN U S A.

DRAWING ISSUE	
1	GWH SJF PD

APP FIG. 8

RELAY DESIG	FL		R								L														DESIG
CODE	AK10										AJ63														CODE
OPTION																									OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12			BM								M	4E5													12
11			M	4B6																					11
10			M								M														10
9			M	4D5							B														9
8			M	4D5							M	4E5													8
7											B														7
6											M														6
5	M	4F6									B														5
4	BM										M	4E6													4
3	BM	2D2																							3
2	BM	4G6									M	4F6													2
1	BM	4G6																							1
COIL		4F6		4B6								4D6													COIL

CAPACITOR

DESIG	LOC	CODE
CC	4C5	542A

DIODES

DESIG	LOC	CODE
CR1	4C6	400J
CR2	4C6	400J
CR3	4C6	400J
CR4	4C6	400J

APP FIG. 9

INTERRUPTER

DESIG	LOC	CODE
INT	4G7	KS-19175,L1

APP FIG. 10

APP FIG. 11

RELAY DESIG	DCS		DCR												TE										DESIG
CODE	AK26														AF10										CODE
OPTION																									OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12			M												EM	6D4									12
11			B	6B1																					11
10			BM												M	2C3									10
9			B																						9
8			M	6D1											EBM	5C7									8
7															B										7
6															EMB										6
5	M	6E1																							5
4	BM														M										4
3	B																								3
2	BM	6C1													M										2
1	M																								1
COIL		6B1		6C1												5D7									COIL

CAPACITOR

DESIG	LOC	CODE
CE	5C7	542A

INDUCTOR

DESIG	LOC	CODE
B	5B7	274L

RESISTORS

DESIG	LOC	CODE
F	6D4	145A,2000
R	6E4	↑ 2000
S	6D4	↓ 796
L	5C7	145A,600

APP FIG. 12

RELAY DESIG	B										RE												Z		DESIG
CODE	AJ43										AJ95												AJ60		CODE
OPTION																									OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12	EBM	5A6									M	5F7													12
11	EBM	5B6									M														11
10	EBM	5C6									BM	5C2											EBM		10
9	EBM	5C6									M														9
8	EMB										BM	4G5											EBM		8
7	EBM										M														7
6	EMB	5C2									BM												EBM	5B2	6
5	EMB	5B2									M	5C2													5
4	EBM	5G6									BM												EBM		4
3	EBM	5G6									M	5G6													3
2	EBM	5G7									M														2
1	EBM	5C2									M	5G6													1
COIL		5C2										5F7												5B2	COIL

RESISTORS

DESIG	LOC	CODE
J	5B6	145A,600
K	5C6	145A,600
M	5B3	KS-14603,L1,402
N	5B3	KS-14603,L1,226

APP FIG. 14

RELAY DESIG																					W1		Z1		DESIG
CODE																					AK21				CODE
OPTION																									OPTION
	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	CONT ARR	LOC	
12																							M		12
11																							M		11
10																							M		10
9																							EM		9
8																							EMB	6D8	8
7																									7
6																									6
5																					EMB	6C8			5
4																					EM				4
3																					M	6E8			3
2																					M				2
1																					M	6E8			1
COIL																						6C8		6D8	COIL

RESISTORS

	DESIG	LOC	CODE
[1]	W1,Z1	6C9	19DW,307

APP FIG. 13

AMPLIFIER

DESIG	LOC	CODE
AMP	6B4	KS-16754,L4

METER

DESIG	LOC	CODE
VU	6B6	KS-8208,L6

RESISTORS

DESIG	LOC	CODE
RV1	6B5	145B,3650
RV2	6B5	KS-14603,L1,82.5
RV3	6B4	145A,600

STATION SYSTEMS

KEY EQUIPMENT NO. 110A, STATIONARY
4 WIRE TOLL LINE TERMINATION CIRCUIT

BELL TELEPHONE LABORATORIES
INCORPORATED

DWG SIZE 6S

SD-69527-01-C2

PRINTED IN U.S.A.

DRAWING ISSUE	
1	G.A.M. SJF PD

CIRCUIT NOTES:

101.

DESIG	FUSE AMP	POTENTIAL	ONE PER
A	1-1/3	-24V SIG	APP FIG. 1
B	1/2	-24V TALK	APP FIG. 1
C	1-1/3	+10V	APP FIG. 1
D	3/4	-24V SIG	3 APP FIG. 11
E	3/4	-24V TALK	3 APP FIG. 11
A		GRD	
B		GRD	
C		GRD	
D		GRD	
E		GRD	

BATTERY SYMBOL	VOLTAGE RANGE
A,D	-20 TO -26
C	8.75 TO 11
B,E	-18 TO -26

102.

FEATURE OR OPTION			PROVIDE		
			FIG.	APP OR WRG	QUANTITY
4-WIRE TELEPHOTOGRAPH AND TELEPHONE TERMINATION MAIN STATION ARRANGED FOR	4-WIRE TELEPHOTOGRAPH EQUIPMENT		1	W	1 PER INSTALLATION
	2-WIRE TELEPHOTOGRAPH EQUIPMENT			V	
	TELEPHOTOGRAPH MACHINE AT MAIN STATION	RECEIVING FROM LOADED CABLE		Z	
		RECEIVING FROM NON-LOADED CABLE		Y	
	ADDITIONAL RECEIVING PAIR FOR 1ST RECEIVE ONLY FACSIMILE MACHINE	RECEIVING FROM LOADED CABLE	2	Z	
		RECEIVING FROM NON-LOADED CABLE		Y	
	ADDITIONAL RECEIVING PAIR FOR 2ND RECEIVE ONLY FACSIMILE MACHINE	REQUIRED	3		
		NOT REQUIRED		T	
	ADDITIONAL RECEIVING PAIR FOR 3RD RECEIVE ONLY FACSIMILE MACHINE	REQUIRED	3	K	
		NOT REQUIRED		X	
ATTENDANT CONSOLE CONNECTING CABLE			4		
IMPEDANCE COMPENSATOR	REQUIRED	CABLE WITH H135, H175 OR H88 LOADING	5		1 PER APP FIG. 1
		CABLE WITH OTHER LOADING		S	
	NOT REQUIRED			R	
D.C. SWITCHING & CONTROL	BY MANUAL OPERATION OF KEYS AT MAIN STATION		6		1 PER APP FIG. 1
PATCHING JACKS ON INCOMING TOLL LINE	REQUIRED		7		1 PER APP FIG. 1
	NOT REQUIRED			M	

102. (CONT):

FEATURE OR OPTION			PROVIDE		
			FIG.	APP OR WRG	QUANTITY
20 CYCLE SIGNALING	REQUIRED		8		1 PER APP FIG.1
	NOT REQUIRED			J	
	FLASHING LAMPS AT MAIN STATION ON INCOMING CALLS	REQUIRED	9	•	1 PER APP FIG. 1
		NOT REQUIRED		Q	
D.C. LOCKING CONTROL CIRCUIT	UNDER CONTROL OF LOCAL SEND KEY OR INCOMING SIGNAL ON SIMPLEX PAIR		10		1 PER APP FIG.1
EXTENSION STATION TELEPHONE	REQUIRED		11		1 PER APP FIG. 11
	ARRANGED FOR ACCESS TO TOLL LINE UNDER CONTROL OF MAIN STATION	REQUIRED	12		
		NOT REQUIRED		N	
VOLUMNE METER CIRCUIT			13		
REMOTE CONTROL CIRCUIT			14		1 PER APP FIG.1

103.

NETWORK VALUES			
NETWORK		RESISTANCE IN OHMS	CAPACITANCE IN UF
NO.	CODE		

104.

RECORD OF FIGURES, WIRING AND APPARATUS CHANGES							
CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT			
				STD	A&M	MD	

105. PROVIDE PADS A, B, C AND D IN FS1 AND E, F AND G IN FS4. IN ACCORDANCE WITH THE FOLLOWING TABLE, TO GIVE THE DESIRED TRANSMISSION LOSSES.

LOSS DB 600Ω	CODE OF 89 TYPE RES IN PAD
0	89A
0.25	89CH
0.50	89C
0.75	89D
1	89E
1.25	89F
1.50	89G
1.75	89H
2	89J
2.25	89K
2.50	89L
2.75	89M
3	89N
3.25	89P
3.50	89R
3.75	89S
4	89T
4.25	89U
4.50	89W
4.75	89Y
5	89AA
5.25	89AB
5.50	89AC
5.75	89AD
6	89AE
6.25	89AF
6.50	89AG
6.75	89AH
7	89AJ
7.25	89AK
7.50	89AL
7.75	89AM

LOSS DB 600Ω	CODE OF 89 TYPE RES IN PAD
8	89AN
8.25	89AP
8.50	89AR
8.75	89AS
9	89AT
9.25	89AU
9.50	89AW
9.75	89AY
10	89BA
10.50	89BB
11	89BC
11.50	89BD
12	89BE
12.50	89BF
13	89BG
13.50	89BH
14	89BJ
14.50	89BK
15	89BL
15.50	89BM
16	89BN
16.5	89BP
17	89BR
17.5	89BS
18	89BT
18.5	89BU
19	89BW
19.5	89BY
20	89CA
20.5	89CB
21	89CC
21.5	89CD
22	89CE
25	89CF
30	89CG

106. USE IMPEDANCE COMFENSATOR ON H88 OR OTHER LOADED LOCAL CHANNEL PAIRS HAVING A CUTOFF FREQUENCY UNDER APPROXIMATELY 4500~. SEE BSP AB22.128.3 AND DWG SD-95756-01 FOR GENERAL INFORMATION.

107. D.C. RESISTANCE OF THE LOOP BETWEEN RELAY "L" AND THE COAM MACHINE TO BE LESS THAN 5 OHMS. THIS CIRCUIT TO RESET FACSIMILE MACHINE WHEN REQUIRED.

108. DISABLING CIRCUIT IN FACSIMILE MACHINE WILL APPLY 6 VOLT 100 MA POWER TO C1 AND C2 LEADS.

109. THE 1000 CYCLE LOSS BETWEEN MATCHED IMPEDANCES FOR CROSS CONNECTIONS OF REPEATER COILS AS SHOWN IN NOTES 401 & 402 IS 0.3 DB.

110. THE 1000 CYCLE LOSS BETWEEN MATCHED IMPEDANCES FOR CROSS CONNECTIONS OF HYBRIDS AS SHOWN IN NOTE 403 IS 3.5 DB.

111. THE 1000 CYCLE LOSS FROM A TELEPHONE TRANSMITTING OR RECEIVING STATION TO THE LINE, WITH THE "C" AND "D" PADS EQUAL TO 0 DB, AND WITH NO LOUDSPEAKERS CONNECTED IS SHOWN IN THE FOLLOWING TABLE AND INCLUDES A 0.3 DB LOSS FOR A REPEATER COIL AND A 0.8 DB LOSS FOR LOUDSPEAKER SET RESISTANCE PAD.

TOTAL NUMBER OF STATIONS ON LINE	LOSS DB	
	RECEIVING (A)	TRANSMITTING (B)
1	2.1	1.3
2	5.1	4.3
3	6.9	6.1
4	8.1	7.3

THE ABOVE TABLE OF LOSSES DOES NOT INCLUDE A 3 DB TRANSMITTING AND RECEIVING GAIN IN EFFECTIVE LOSS DUE TO THE USE OF A 4-WIRE SET INSTEAD OF A 2-WIRE ANTI-SIDETONE SET.

112. THE TOTAL BRIDGING LOSS TO THROUGH TRANSMISSION RESULTING FROM THE CONNECTION OF LOUDSPEAKER IS SHOWN ON TABLE.

TOTAL NUMBER OF LOUDSPEAKERS PERMANENTLY CONNECT TO LINE	BRIDGING LOSS (RECEIVING)
1	0.8
2	1.6
3	2.3
4	2.9

113. THE 1000 CYCLE LOSS BETWEEN THE TELEPHOTO MACHINE AND THE LINE WITH THE "A" AND "B" PAD EQUAL TO 0 DB IS SHOWN BELOW AND INCLUDES A 0.3 DB LOSS FOR A REPEATER COIL, A 0.8 DB LOSS FOR A LOUDSPEAKER RESISTANCE PAD AND A 0.3 DB LOSS FOR AN ISOLATION COIL J.

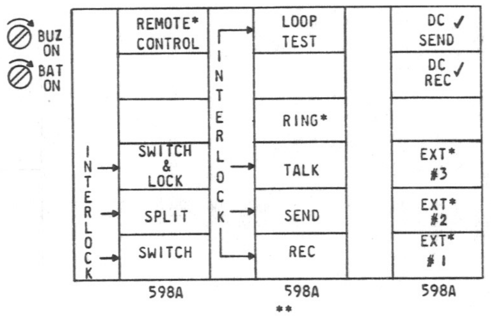
NUMBER OF LOUDSPEAKERS PERMANENTLY CONNECTED TO LINE	LOSS DB	
	RECEIVING (C)	TRANSMITTING (D)
0	1.4	0.3
1	2.3	0.3
2	3.1	0.3
3	3.7	0.3

114. LOCAL STATION TELEPHONE - TYPE 211JR-51 HAND TELEPHONE SET AND 685A-3 SUBSCRIBER SET WIRED FOR MANUAL OPERATION PER BSP-502-302-403.

INFORMATION NOTES:

301. UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS,
CAPACITANCE VALUES ARE IN MICROFARADS,
VALUES PRECEDED BY THE SYMBOL + (PLUS) OR - (MINUS) ARE IN VOLTS.

302. ARRANGEMENT OF CONTROL KEYS IN 625 TEL SET



*THESE POSITIONS ARRANGED TO BE NON-LOCKING, NON-RELEASING

✓THESE POSITIONS FOR INDICATING PURPOSES ONLY. KEYS PERFORM NO FUNCTION

**NO INTERLOCKING ARRANGEMENT BETWEEN KEYS.

WORKING LIMITS

MAX EXT CKT LOOP RES	2000
MIN INS RES	20,000
RES OF SHORTING CKT TO RESET FAC MACH	5

STATION SYSTEMS

KEY EQUIPMENT NO. 110A, STATIONARY
4 WIRE TOLL LINE TERMINATION CIRCUIT

SD-69527-01-DI

BELL TELEPHONE LABORATORIES
INCORPORATED

DWG SIZE 6S

PRINTED IN U.S.A.

DRAWING ISSUE	
1	GJH SJF PD

CROSS CONNECTION INDEX

TERM. DESIG	LOCATION				FUNCTIONAL MEANING		SEE NOTE
	FS	UNIT	TERM STRIP	TERM. NO.			
A1-A12	1C3-1E3 & 1C4-1E4	MAIN CONTROL	B	41-48 & 51-54	4-WIRE RECEIVE PAIR REPEATING COIL		402, 403
B1,B2, B4-B7 B9-B12			A	47,48 & 51-58	4-WIRE TRANSMIT PAIR REPEATING COIL		401
C,C6 C7,C9 C12	1E7			25,28 & 34-36	TELEPHONE RECEIVE PAIR AUTO TRANSFORMER		406
D,D6 D7,D9 D12	1G7			26,27 & 31-33	TELEPHONE TRANSMIT PAIR AUTO TRANSFORMER		
E1,E2, E4-E12	1B3-1G3 & 3B3	FACSIMILE EXT NO. 1	A	31-35 & 41-44	HYBRID RECEIVE REPEATING COILS		403
CD1-CD5	3E0		B	11-15	CAPACITOR	LOADED CABLE COMPROMISE NETWORK	404
RA, RA1-RA10	3B0			34-38 & 41-46	RESISTOR		
RB, RB1-RB10	3G0			18,21-28, 31 & 38			
RR,RT	1D2			4-WIRE TRUNK	4-WIRE TRUNK		402, 403
TR,TT		IMP COMP	A	25-28			401
		PATCH JACK		(RR),(RT),(TR),(TT) JACKS			
LCR, LCT	1F3	MAIN CONTROL	A	41 & 42	DC LOCKING CONTROL		401, 402, 403, 405
LSR, LST	1F3			43 & 44	20 ~ SIGNALING		
RSR, RST	1H3			37 & 38			
RR1, RT1	1B4		B	55 & 56	MAIN STATION RECEIVE PAIR		402, 403,
SCR, SCT	1F3		A	41 & 42	DC SWITCHING & CONTROL		401, 402, 403, 405
TR1, TT1	1D4		B	45 & 46	MAIN STATION TRANSMIT PAIR		401

CROSS CONNECTION NOTES:

401. ASSIGNMENT OF TRANSMITTING LINE PAIR TO MAIN STATION EQUIPMENT TO PROVIDE FOR IMPEDANCE MATCHING FOR TELEPHOTOGRAPH MACHINE ONLY.

MAIN STA EQUIP. ARR WITH OPTION	IMPEDANCE			CONN TERMINAL OR LEAD					AND	STRAP			1000 ~ LOSS (DB) BETWEEN MATCHED IMPEDANCE
	LINE	EQUIP	RATIO OF LINE TO EQUIP	TT	TR	TT1	TR1	*		TERM.	TO	TERM.	
				TO TERMINAL									
Y OR Z	200	600	1:3	B7	B12	B1	B6	B9		B4 B9		B5 B10	0.3
	450		1:1.33	B1	B4	B7	B12	B2		B9		B10	
	571		1:1.05	B1	B4	B7	B11	B2		B9		B10	
	800		1.33:1	B7	B12	B1	B4	B9		B9		B10	
	1200		2:1	B1	B4	B7	B12	B2		B9		B11	
	1800		3:1	B1	B6	B7	B12	B4		B4 B9		B5 B10	

* TIP OF SIMPLEX PAIR (SEE NOTE 405).

402. ASSIGNMENT OF RECEIVING LINE PAIR TO MAIN STATION EQUIPMENT TO PROVIDE FOR IMPEDANCE MATCHING FOR TELEPHOTOGRAPH MACHINE ONLY.

MAIN STA EQUIP. ARR WITH OPTION	IMPEDANCE			CONN TERMINAL					AND	STRAP			1000 ~ LOSS (DB) BETWEEN MATCHED IMPEDANCE
	LINE	EQUIP	RATIO OF LINE TO EQUIP	RT	RR	RT1	RR1	*		TERM.	TO	TERM.	
				TO TERMINAL									
Z	200	600	1:3	A7	A12	A1	A6	A9		A2 A4 A9		A3 A5 A10	0.3
	450		1:1.33	A1	A4	A7	A12	A2		A2 A9		A3 A10	
	571		1:1.05	A1	A4	A7	A11	A2		A2 A9		A3 A10	
	800		1.33:1	A7	A12	A1	A4	A9		A2 A9		A3 A10	
	1200		2:1	A1	A4	A7	A12	A2		A2 A9		A3 A11	
	1800		3:1	A1	A6	A7	A12	A4		A2 A4 A9		A3 A5 A10	
Y	600		1:1	A7	A10	A1	A6	A2		A2 A8		A5 A9	

* RING OF SIMPLEX PAIR (SEE NOTE 405).

403. ASSIGNMENT OF RECEIVING LINE PAIR TO MAIN STATION EQUIPMENT TO PROVIDE IMPEDANCE MATCHING FOR TELEPHOTOGRAPH MACHINE WITH EXTENSION FACSIMILE MACHINES (MAX. 3).

MAIN STA EQUIP. ARR WITH OPTION	IMPEDANCE			CONN TERMINAL								AND	STRAP			1000 ~ LOSS (DB)
	LINE	EQUIP	RATIO TO LINE TO EQUIP	RT	RR	R3	*	RT1	RR1	RT2	RR2		TERM.	TO	TERM.	
				TO TERMINAL												
Z	900	600	1.5:1	A1	A4	A6	E2	A7	A12	E7	E12		A2 A3 A5 A9		E1 E4 E5 A10	3.5
	1500		2.5:1					A8	A11	E8	E11		E9		E10	
Y	600		1:1					A7	A10	E7	E10		A2 A3 A5 A8 E8		E1 E4 E5 A9 E9	

* RING OF SIMPLEX PAIR (SEE NOTE 405).

404. ASSIGNMENT OF RA, RB AND CD VALUES TO THE COMPROMISE NETWORK PER FIG. 2 WITH Z OPTION TO PROVIDE FOR IMPEDANCE MATCHING FOR LOADED CABLE LINE FACILITIES WHEN THE MAIN STATION EQUIPMENT IS ARRANGED FOR EXTENSION FACSIMILE MACHINES.

TYPE	GAUGE	TO OBTAIN THESE RES & CAP. VALUES FOR COMPROMISE NET.			CONN TERM.		
		RA (OHMS)	RB (OHMS)	CD (UF)	RB	RA	
					TO TERM.		
H44 CABLE LOOP	19	768	1540	1.14 1.20	RB5,CD1 CD4	RA5,RA9 RA10	STRAP TERM. OF (C1) CAPACITOR AS REQD TO OBTAIN
	22,24 OR 26	706	1420	.50	RB4,CD1, CD2	RA5,RA8 RA10	
H88 CABLE LOOP	19	1090	2180	1.56 1.60	RB8,CD1, CD2,CD5	RA2	
	22	976	1960	.91 .95	RB6,CD2, CD3,CD4	RA1	
	24 OR 26	1000	2000	.45	RB7,CD3, CD4	RA5, RA9	
B88 CABLE LOOP	19	1540	3090	2.05 2.07	RB10, CD1-CD5	RA5	
	22 OR 24	1370	2740	1.00	RB9, CD1	RA3	

405. ASSIGNMENT OF SIMPLEX LEADS TO PROVIDE FOR ONE OF SIGNALING OR DC CONTROL FUNCTIONS OVER THE 4-WIRE LINE WHERE MORE THAN ONE FEATURE IS REQUIRED, ADDITIONAL LINE FACILITIES MUST BE PROVIDED IN ACCORDANCE WITH CUSTOMER'S REQUIREMENTS.

FEATURE	FUNCTION	CONN TERM.	
		*	**
		TO TERM.	
20 ~ SIGNALING	TO PROVIDE LAMP INDICATION AND FACSIMILE MACHINE RESET	LST	LSR
	TO PROVIDE AUDIBLE INDICATION	RST	RSR
DC LOCKING CONTROL		LCT	LCR
DC SWITCHING & CONTROL		SCT	SCR

* SEE NOTE 401.
** SEE NOTE 402 & 403.

406. ASSIGNMENT OF OUTPUT TRANSFORMERS (C) AND (D) TO PROVIDE CONSTANT IMPEDANCE TO TOLL LINE WITH VARYING NUMBER OF TELEPHONE STATIONS EQUIPPED.

NUMBER OF TELEPHONE STATIONS EQUIPPED	CONN TERM.	
	C	D
	TO TERM.	
1	C12	D12
2	C9	D9
3	C7	D7
4	C6	D6

407. FOR CROSS CONNECTIONS USE THE FOLLOWING WIRE:

   A. ON UNIT TERMINAL STRIPS USE SLEEVED STRAP OR BARE WIRE AS REQD.

   B. BETWEEN TERMINAL STRIPS ON SAME FRAME USE 24 BU GREEN WIRE.

408. WHEN FIG. 5 IS REQUIRED, INFORMATION FOR STRAPPING ON THE (CA) AND (CB) CAPACITORS FOR ADDING CAPACITANCE TO BUILD-OUT THE CABLE PAIR CAPACITANCE TO .8 LOADING SECTION, SHALL BE PROVIDED BY THE TEL. CO. ENGINEER.

409. WHEN THE FIG. 2 WITH "Z" OPTION IS REQUIRED, ON (C1) CAPACITOR, STRAP THE (A) TERMINAL TO ONE OR MORE OF TERMINALS (1) TO (10) SO AS TO OBTAIN MAXIMUM TRANSMISSION LOSS BETWEEN RECEIVE PAIRS (RT1-RR1) AND (RT2-RR2) AT 2000~.

410. WHEN FIG. 2 WITH "Y" OPTION IS REQUIRED, INFORMATION FOR STRAPPING ON THE (Z1) NETWORK SHALL BE PROVIDED BY THE TEL. CO. ENGINEER IN ACCORDANCE WITH BSP AB24. 78, DWG. NO. 906-7406.

1

STATION SYSTEMS

KEY EQUIPMENT NO. 110A, STATIONARY
4-WIRE TOLL LINE TERMINATION CIRCUIT

SD-69527-01-D2

BELL TELEPHONE LABORATORIES
INCORPORATED

DWG SIZE 6S

PRINTED IN U.S.A.

SD-69527-01

CIRCUIT REQUIREMENTS

KEY EQPT NO. 110A, STA 4 WIRE TOLL LINE TERM. CKT

DRAWING ISSUE	
1	GJH SJF PD

APPARATUS					MECH REQT			CIRCUIT PREPARATION			TEST SET PREP	SEE TEST NOTE	DIRECT CURRENT FLOW REQT					REMARKS
								BLOCK OR INSULATE	TEST CLIP DATA									
DESIG	CODE	OPT.	FIG.		BSP FIG.	CONT PRES	ARM. TRVL		CONN BAT.	CONN GRD			TEST WDG	TEST FOR	AFTER SOAK MA	TEST MA	READJ MA	
RELAYS.																		
A	AJ39		1		220					U(A)	GRD			0		18.5	17.5	
A1	1/2AK10		1		7					1L(A1)	GRD			0		16.5	15.5	MOUNTED WITH (BA)
B	AJ43		12		249			5(B)		U(B)	GRD			0		24	23	
BA	1/2AK10		1		7					1U(BA)	GRD			0		8.0	7.4	MOUNTED WITH (A1)
DCR	1/2AK26		10		10			DCS(0)	2U(DCR)	1U(DCR)	GRD			0		14.5	13.8	MOUNTED WITH (DCS)
DCS	1/2AK26		10		10					1L(DCS)	GRD			0		15.0	14.2	MOUNTED WITH (DCR)
FL	1/2AK10		9		7					1L(FL)	GRD			0		16.5	15.5	MOUNTED WITH (R)
L	AJ63		8		68							1		0		80	75	20~ AC VOLTAGE REQT FOR 20 CYCLES
N	AJ75		1		291					U(N)	GRD			0		7.0	6.5	
R	1/2AK10		9		7					1U(R)	GRD			0		8.0	7.4	MOUNTED WITH (FL)
RE	AJ95		12		63					U(RE)	GRD			0		14.0	13.2	
S	AJ39		1		220					U(S)	GRD			0		18.5	17.5	
SW	1/2AK30		6		202					1U(SW)	GRD			0		23.0	22.0	MOUNTED WITH (SWL)
SWL	1/2AK30		6		202					1L(SWL)	GRD			0		23.0	22.0	MOUNTED WITH (SW)
TE	AF10		11		214					L(TE)	GRD			0		7.6	7.2	
W1	1/2AK21		14		215			10M(Z1),10M(W1)		1L(W1)	GRD			0		20.5	19.5	MOUNTED WITH (Z1)
Z	AJ60		12		203			5(B)		U(Z)	GRD			0		21	20	
Z1	1/2AK21		14		215			10M(Z1),10M(W1)		1U(Z1)	GRD			0		20.5	19.5	MOUNTED WITH (W1)

TEST NOTES:

1. DISCONNECT CROSS-CONNECTION LEADS ON TERM LSR AND LST
   BEFORE APPLYING TEST LEADS TO TERM LSR AND LST.
   TS(A)-TERM 43, AND 44.

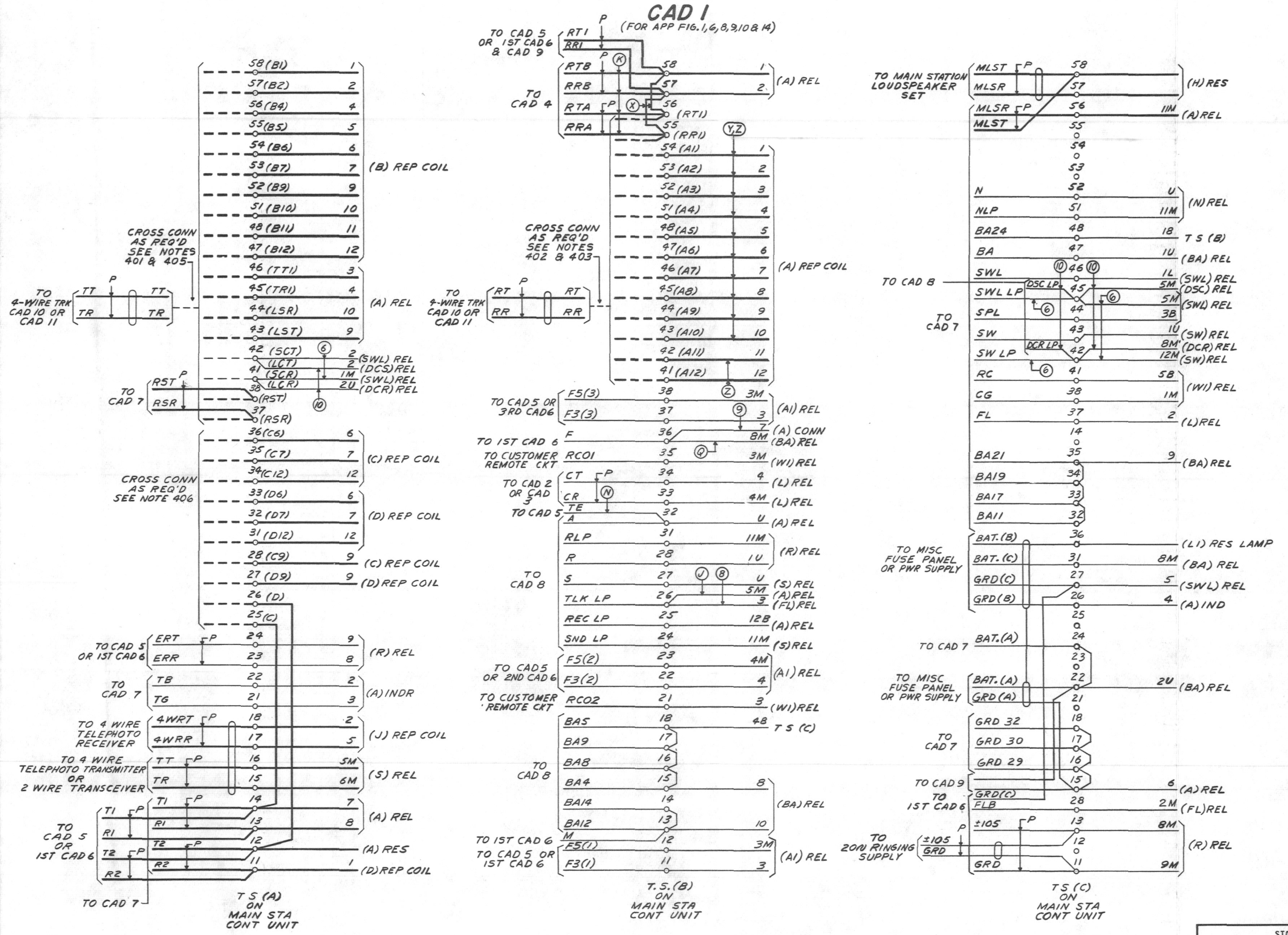
STATION SYSTEMS

KEY EQUIPMENT NO. 110A, STATIONARY
4-WIRE TOLL LINE TERMINATION CIRCUIT

SD-69527-01-F1

BELL TELEPHONE LABORATORIES
INCORPORATED

PRINTED IN U. S. A.



STATION SYSTEMS

KEY EQUIPMENT NO. 110A, STATIONARY
4-WIRE TOLL LINE TERMINATION CIRCUIT

SD-69527-01-G1

BELL TELEPHONE LABORATORIES
INCORPORATED

DWG SIZE 6S

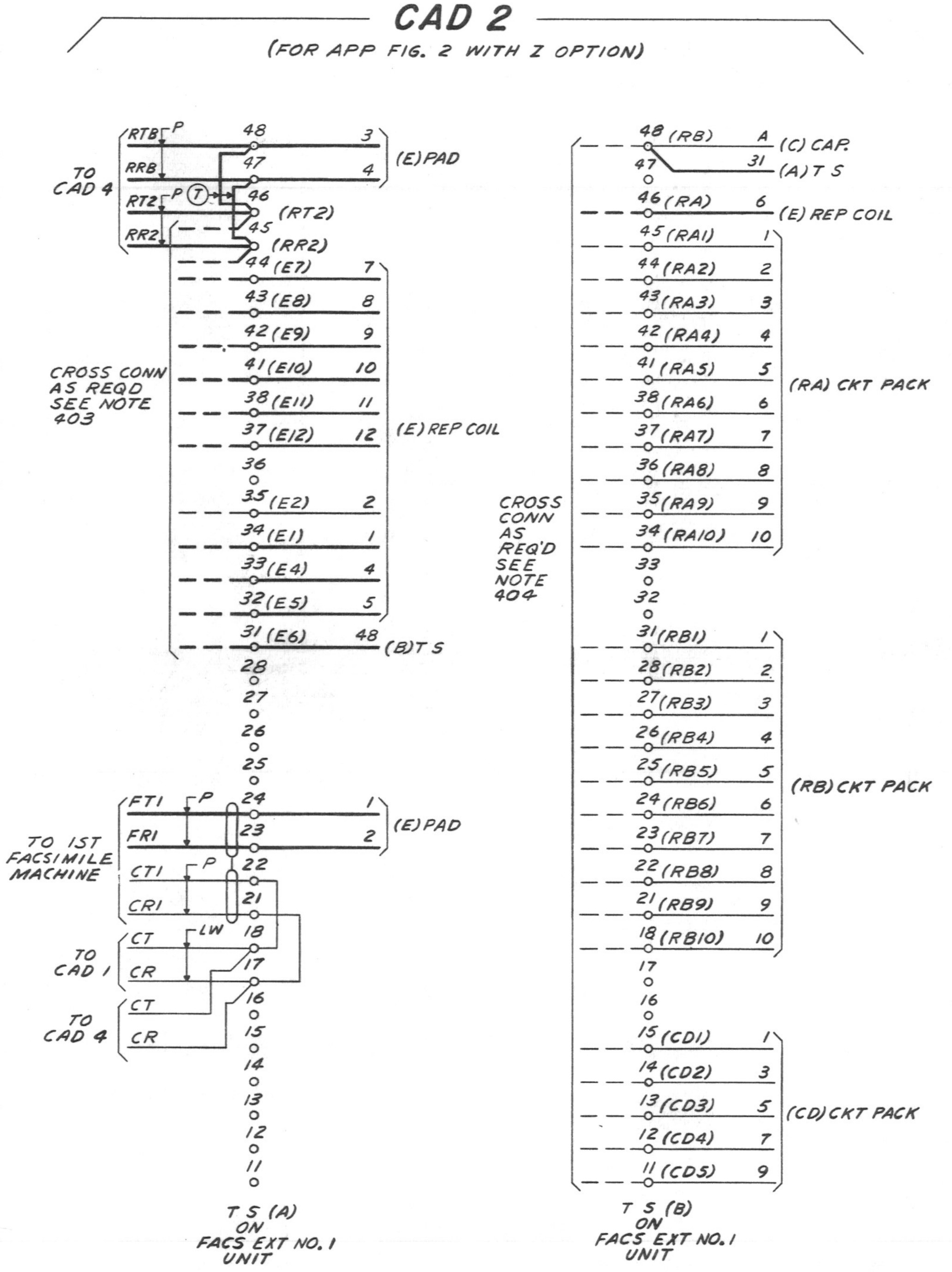
PRINTED IN U.S.A.

DRAWING ISSUE 1 GJH SJF PD

DRAWING ISSUE	
1	GJH SJF PD

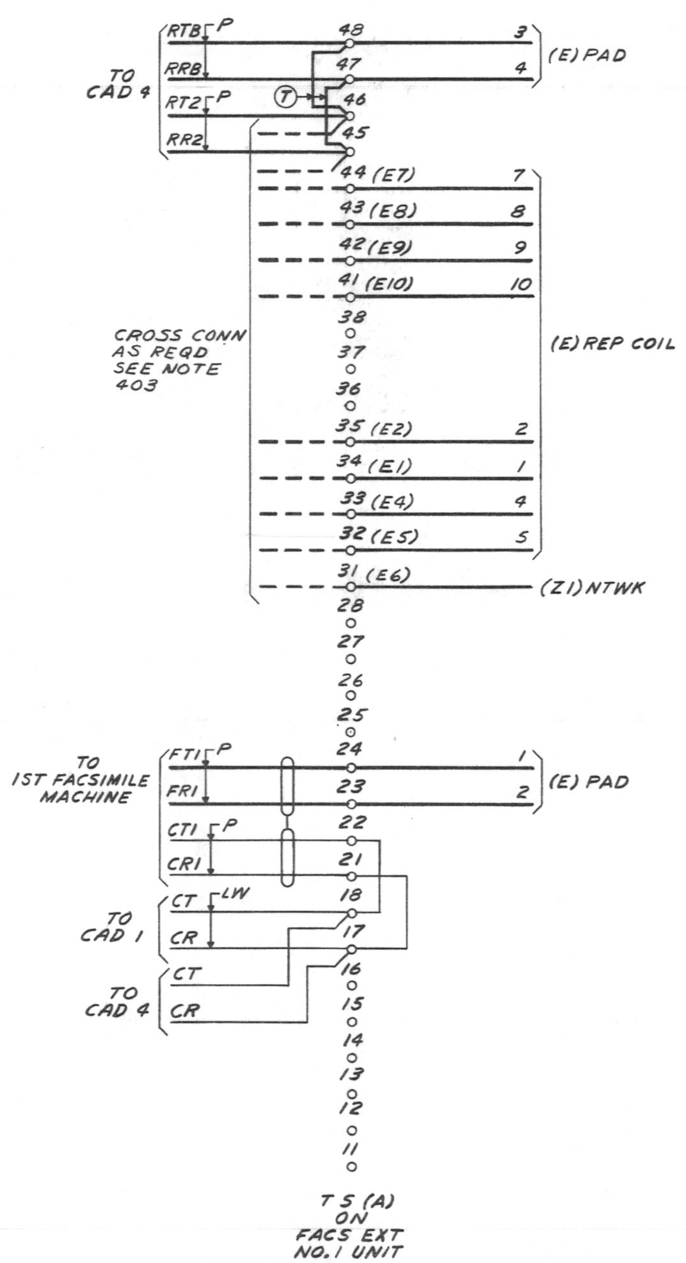
CAD 2

(FOR APP FIG. 2 WITH Z OPTION)



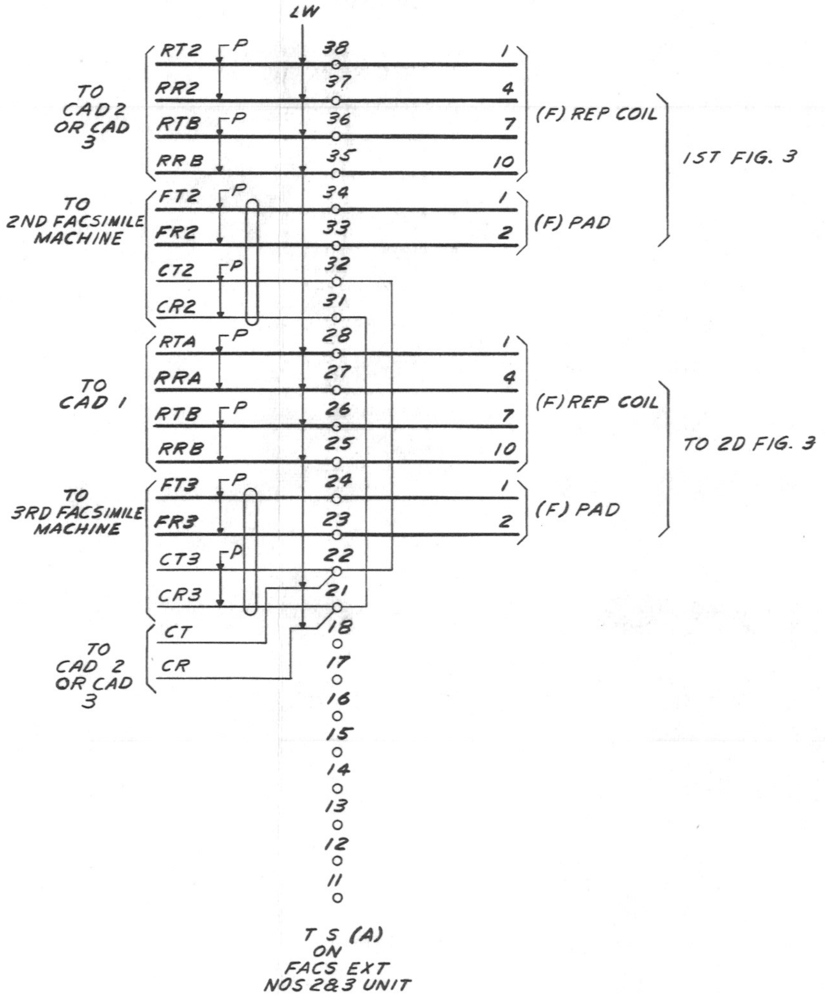
CAD 3

(FOR APP FIG. 2 WITH Y OPTION)



CAD 4

(FOR 2 APP FIG. 3)



STATION SYSTEMS

KEY EQUIPMENT NO. 110A, STATIONARY
4-WIRE TOLL LINE TERMINATION CIRCUIT

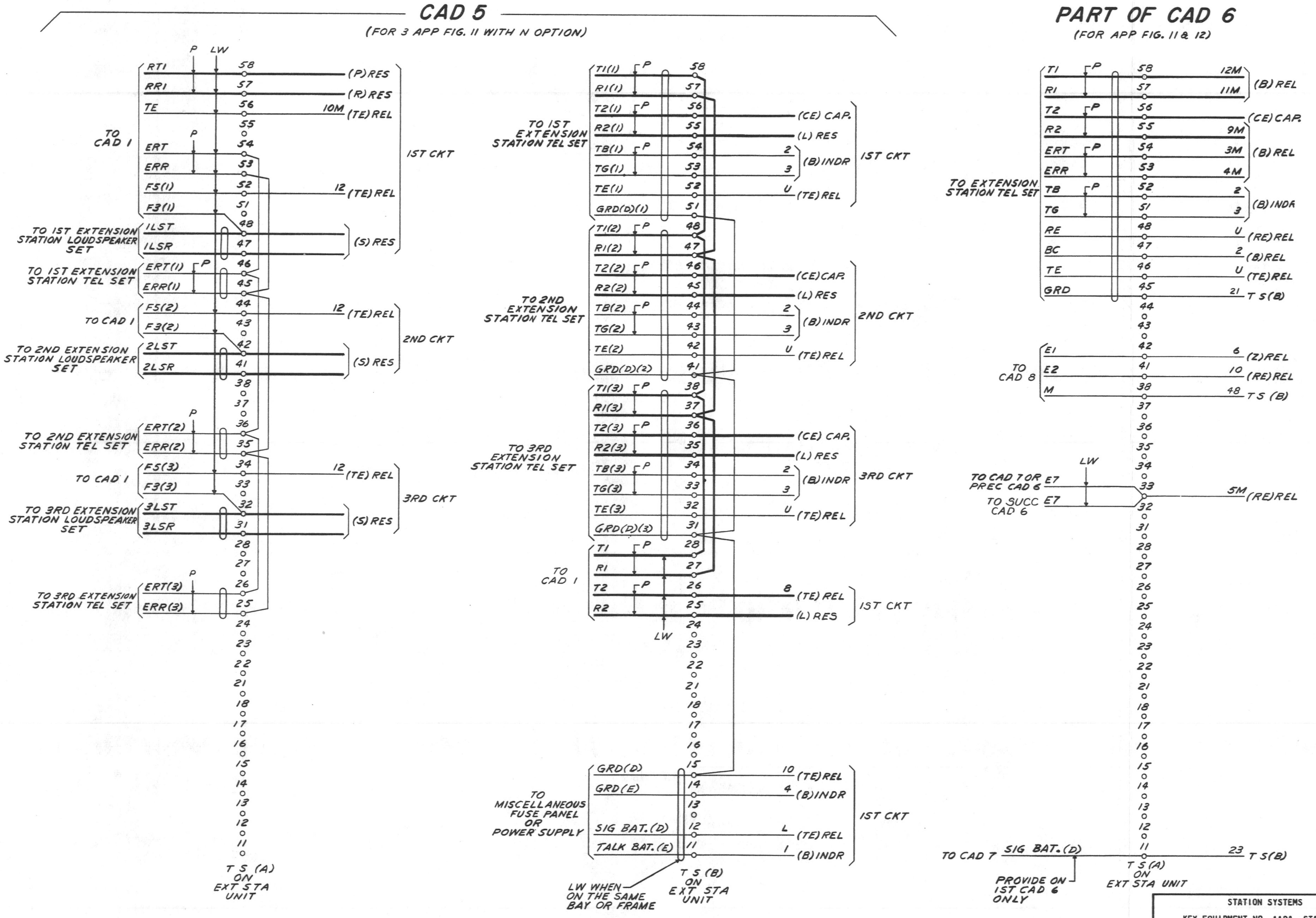
SD-69527-01-G2

BELL TELEPHONE LABORATORIES
INCORPORATED

DWG SIZE 6S

PRINTED IN U.S.A.

DRAWING ISSUE	
1	GJH SJF PD



STATION SYSTEMS

KEY EQUIPMENT NO. 110A, STATIONARY
4-WIRE TOLL LINE TERMINATION CIRCUIT

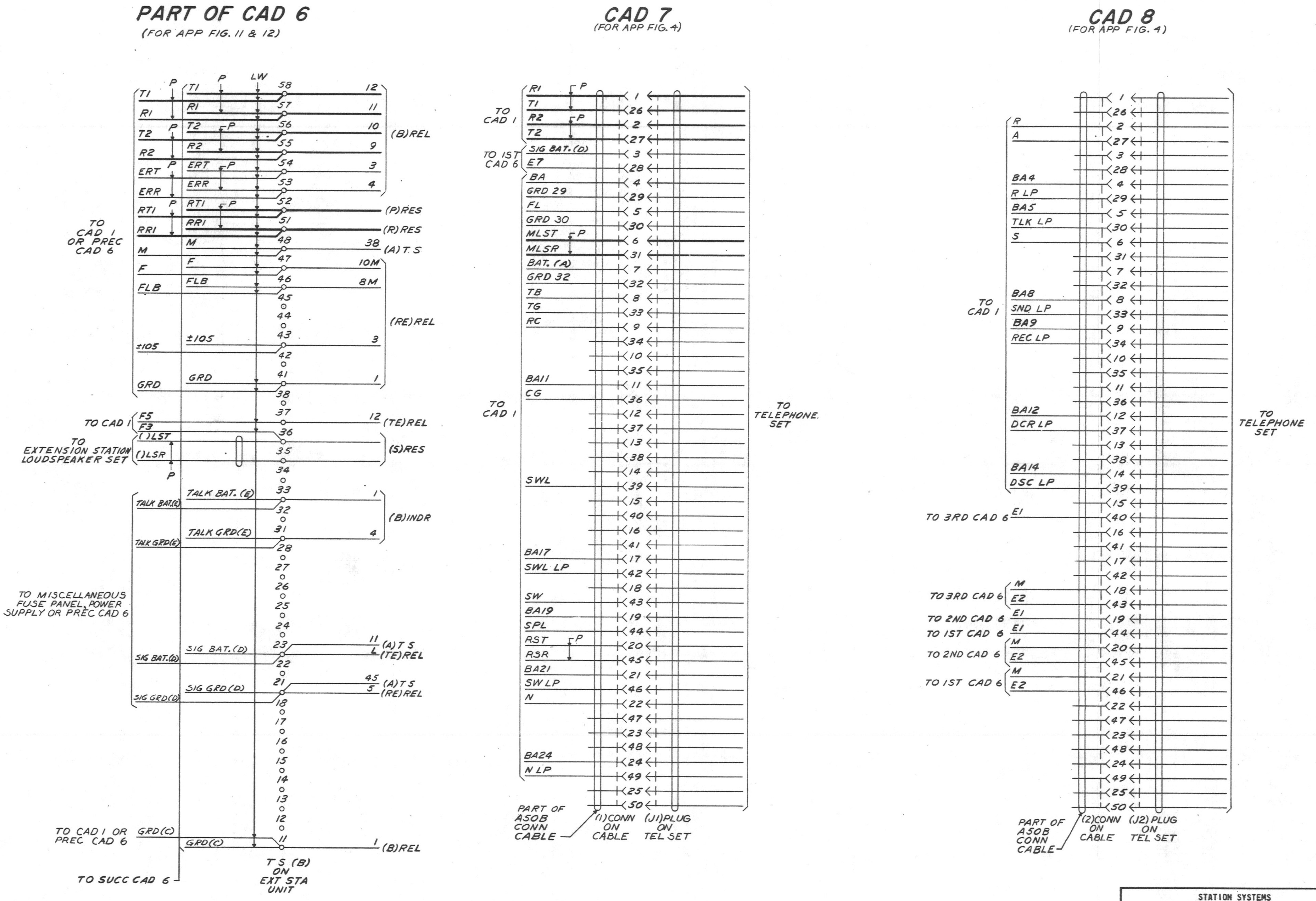
SD-69527-01-G3

BELL TELEPHONE LABORATORIES
INCORPORATED

DWG SIZE 6S

PRINTED IN U.S.A.

DRAWING ISSUE
6JH
SJF
PD



STATION SYSTEMS

KEY EQUIPMENT NO. 110A, STATIONARY
4-WIRE TOLL LINE TERMINATION CIRCUIT

SD-69527-01-G4

BELL TELEPHONE LABORATORIES
INCORPORATED

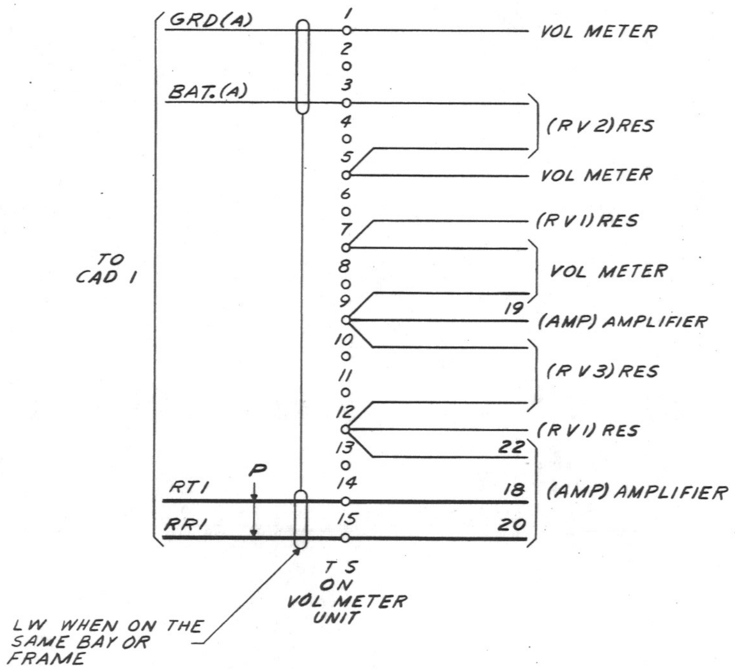
DWG SIZE 6S

PRINTED IN U.S.A.

DRAWING ISSUE	
1	GJH SJF PD

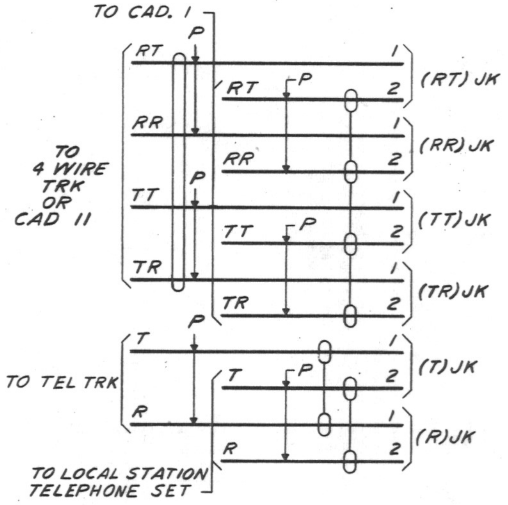
CAD 9

(FOR APP FIG. 13)



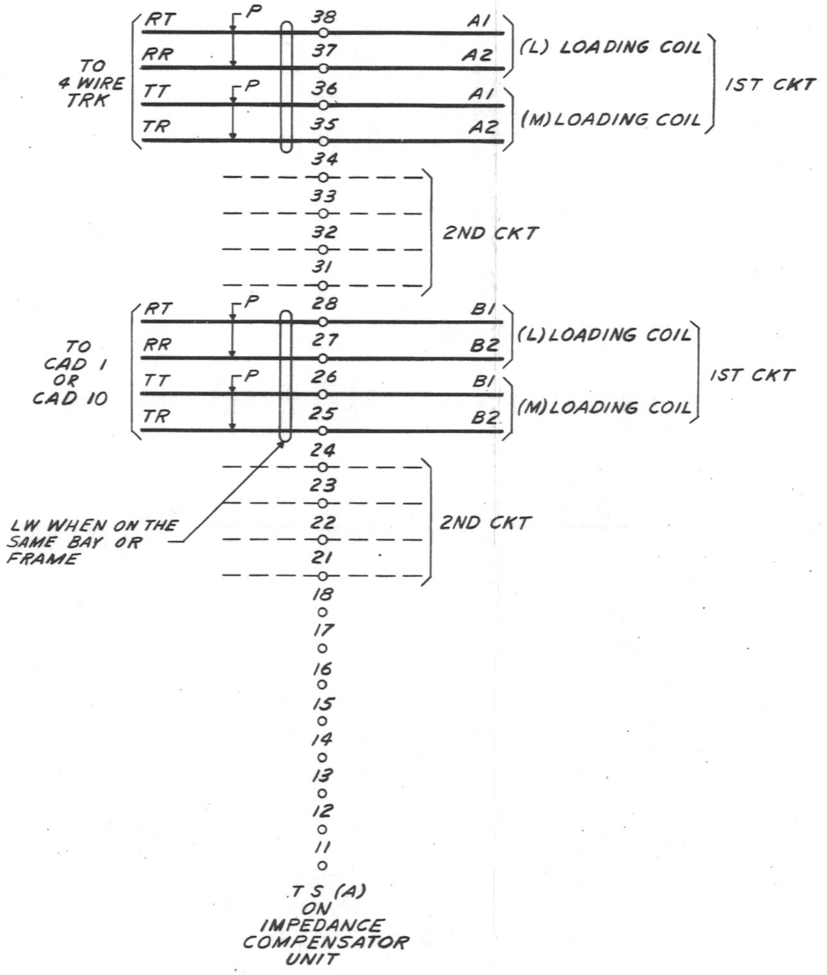
CAD 10

(FOR APP FIG. 7)



CAD 11

(FOR 2 APP FIG. 5)



STATION SYSTEMS
KEY EQUIPMENT NO. 110A, STAT,ONARY
4-WIRE TOLL LINE TERMINATION CIRCUIT

SD-69527-01-G5

BELL TELEPHONE LABORATORIES
INCORPORATED

DWG SIZE 6S

PRINTED IN U.S.A.

DRAWING ISSUE

1 GJH SJF PP

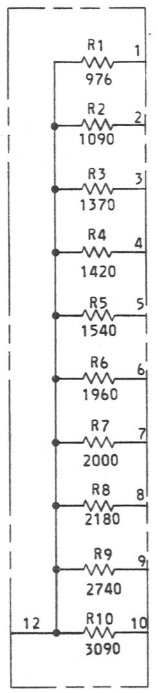
MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE AND ASSEMBLY DRAWING	
CPS1	ED-94823-( ), G229
CPS2	ED-94823-( ), G230

CPS 1

COMPONENT LIST

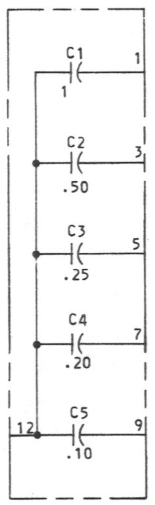
DESIG	CODE
R1	145A,976
R2	1090
R3	1370
R4	1420
R5	1540
R6	1960
R7	2000
R8	2180
R9	2740
R10	145A,3090



CPS 2

COMPONENT LIST

DESIG	CODE
C1	542N,1
C2	542A,.50
C3	542C,.25
C4	542B,.20
C5	542AD,.10



STATION SYSTEMS

KEY EQUIPMENT NO. 110A, STATIONARY
4-WIRE TOLL-LINE TERMINATION CIRCUIT

SD-69527-01-J1

BELL TELEPHONE LABORATORIES
INCORPORATED

DWG SIZE 6S

PRINTED IN U.S.A.